II. RESEARCH DESIGN

A. INTRODUCTION

A number of specific research objectives were formulated at the outset of the project, to structure the historical research and field excavations. As the project developed from an identification and evaluation study into a data recovery program, the research design was refined to focus less on site-specific concerns to issues of broader historical interest.

The objectives of the first stage of historical research were to describe the land use, partitioning and occupational histories for the two areas of the block comprising the study area: (i) Lots 58A, 58B and 58C and (ii) Lots 3 and 4. The first stage of the archaeological fieldwork was oriented toward identifying and evaluating the archaeological resources in these areas. A previous survey (Cunningham et al. 1984) had identified eighteenth-century refuse deposits on Lots 58B and 58C, but it was not known whether these resources had survived recent grading in that area. On Lots 3 and 4, it was anticipated that features or refuse deposits associated with the William Hare Pottery might be present, although the previous survey (Cunningham et al. 1984) indicated that this area had been looted.

Despite the uncertainty at the outset of the project, the excavations generally produced the anticipated results but with some unexpected findings. Well-preserved refuse deposits associated with the Old Swedes Church Parsonage Lot were identified on Lots 58B and 58C, as indicated by the earlier study. A number of foundation walls were identified on Lots 58A, 58B and 58C, but the relationship of the eighteenth-century deposits to these architectural features was not clear. Excavations in that area also produced a small amount of refuse associated with the nineteenth- and twentieth-century occupants, but generally from disturbed contexts. On Lots 3 and 4, some materials associated with the William Hare Pottery kiln were recovered, as anticipated in LBA's original research proposal, but these were also from disturbed contexts. The unexpected result of the initial fieldwork was the identification of a prehistoric occupational component. A small prehistoric assemblage consisting of ceramic sherds, a large bifacial tool, and waste flakes of various raw materials was recovered from widely scattered contexts on the block.

In consultation with the Delaware Bureau of Archaeology and Historic Preservation, additional research (i.e., data recovery) was authorized, specifically focused on the following objectives:

- define the extent of the foundation walls exposed on Lots 58A, 58B and 58C;
- determine the relationship of the eighteenth-century refuse to the foundation walls;
- recover a larger sample of the eighteenth-century refuse;
- evaluate the contexts from which aboriginal materials were recovered.

These objectives were achieved during a second phase of archaeological excavations, which is described in detail in Chapter IV. Briefly, the excavations demonstrated that the surviving, intact eighteenth-century refuse deposits were contained within the cellar of an eighteenth-century structure. The prehistoric occupational component, although it extended over a large area, was

determined to have been severely disturbed by subsequent historic use of the lot, so that it was clearly of secondary importance in comparison to the eighteenth-century occupation.

After preliminary processing and evaluation of the recovered artifact assemblage, LBA prepared a research proposal (Louis Berger & Associates 1986a) to conduct additional historical research, to complete the artifact analysis and to synthesize the results into a technical report. In that document, the research design was developed in accordance with the research priorities and information needs stated in the City's archaeological resource management plan. Of course, the research design also reflects issues of long-term interest on the part of the LBA Cultural Resource Group.

The following section provides a detailed discussion of the research issues that form the overall theoretical framework guiding the data analysis and interpretation for this study. The principal research issue addressed in this study is household consumer behavior. First, a discussion of this issue is presented, including a brief review of pertinent studies drawn both from within the field of archaeology and from other disciplines, such as economics, history, etc. This is followed by an examination of how the information obtained during this study can address specific information needs articulated in the City's current archaeological resource management plan. The chapter concludes with an overview of the methodology used to address the research issues and information needs.

B. PROBLEM ORIENTATION

1. Theoretical Issues

a. Consumer Behavior--Definition of Problem

The research issue of primary theoretical interest in this study is consumer behavior. Because consumer behavior has been a widely studied phenomenon in the social sciences, definitions of the problem are myriad. Narrowly defined, consumer behavior pertains to the patterns of individual, household or group expenditures, and specifically the acquisition and use of material items (Wise 1984). Particularly within the field of archaeology, the study of consumption is generally focused on material goods or foodstuffs. However, a more expansive definition of consumer behavior includes a consideration of its non-material aspects as well. Zimmerman (1936) has provided an expansive definition of consumption, introducing a number of important, related concepts. Values such as frugality, self-indulgence are closely related to the acquisition and use of material goods, and these values are termed, following Zimmerman (1936:4), "manners of living." Non-material aspects of consumption include the disposal of income for charities and the extent to which expenditures may be deferred by savings or investments. The standard of living concept, as used by Zimmerman, refers to patterns of consumption that express typical or normal values of a given group. Zimmerman distinguishes the standard of living from the plane of living, using the latter to denote the relative volume of economic expenditures (Zimmerman 1936:4-7).

b. Consumer Behavior Research in Archaeology

Archaeologists have only recently turned attention to explicit studies of consumer behavior. At the beginning of the 1980s, consumer behavior was not listed as a research topic or problem domain in any of more than 30 cities where archaeological studies had been undertaken (Staski

1982). But in the past few years, the number of archaeological studies that are explicitly focused on consumer behavior has expanded rapidly (e.g., Spencer-Wood 1987).

Although consumer behavior is becoming a commonly used context for interpretation of archaeological refuse deposits, relatively little attention has been given to the development of behavioral models that pertain to purchasing behavior at the household level. With a few notable exceptions (e.g., Shephard 1984), the models employed by most archaeologists are based on the notion that there is a simple, direct correlation between the relative cost of goods purchased by a particular household and the economic position or ethnic affiliation of the household. Previous research of Wilmington's Block 1101 (Louis Berger & Associates 1986b) addressed some of the weaknesses of these simplistic approaches and pointed out the need to consider factors other than economic position, status, or ethnic affiliation.

Archaeologists have used a variety of approaches to examine consumer behavior. For example: dietary patterns and foodways may be interpreted from floral and faunal data; expenditures for certain durable goods may be measured by techniques such as the Miller (1980) ceramic economic scale or other derivative methods; ceramic vessel forms may provide information on food preparation and consumption patterns; and bottles may provide information on the consumption of medicines, various types of beverages, condiments, etc. The most important successful studies of consumer behavior are those that integrate multiple data sets.

Some of the key concepts that may be incorporated into archaeological models of household consumption include: socioeconomic class or status and norms of consumption; household life cycle and composition; market structure (cash, barter and the use of credit); purchasing patterns; access to markets; relative cost of functionally equivalent goods; use-life or life cycle of durable vs. consumable goods; budget allocation among various categories of goods (food, housing, clothing, savings, investments, capital improvements, etc.); and differential rates of discard for various items.

As a phenomenon of general rather than particularistic historical interest, consumer behavior has generally been approached from a comparative perspective. As such, the study of consumer behavior requires a comparative database, in order to allow, for example, comparison of patterns characteristic of various ethnic groups, socioeconomic classes, historical periods, geographic regions, etc.

In recent years, there have been a number of studies utilizing a comparative approach, but as the number of these studies is increasing, attempts to synthesize information from different regions have not yet been successful. At a recent Society for Historical Archaeology workshop, participants attempted to correlate the results of consumer behavior research from a number of cities, but this exercise met with little success. While this has been attributed at least partially to lack of standard analytical techniques (Henry 1987), the absence of explicit behavioral models may be an equally important or more important reason why it has been difficult to move from individual site reports to broader syntheses.

Several studies have attempted to establish differences in consumer behavior that may be linked with ethnicity and socioeconomic status (Spencer-Wood 1987). However, it may be more appropriate to use the household as the primary unit for analysis of domestic consumption patterns rather than ethnic groups or socioeconomic classes. LBA's recent work at the Christina Gateway project (Block 1101) in Wilmington, Delaware has demonstrated that household consumption patterns are closely linked to the household's composition (especially the presence

of boarders), the household's life cycle (especially the presence of young children), and the household's income strategy (the presence of secondary wage earners) (LeeDecker et al. 1987; Louis Berger & Associates 1985b).

The household is well-suited to the study of consumer behavior, as it is frequently possible to associate specific households with clearly defined physical spaces, i.e., houselots. Moreover, particular households or groups of individuals who co-reside at a single address may be identified in the historical record, making it possible during analysis to control factors internal to the household. A shortcoming of many studies that attempt to address consumption patterns relative to broadly-defined socioeconomic classes, is their tendency to make generalizations about social classes on the basis of on an extremely small sample of households (e.g., Rockman et al. 1983), or that several individual households are conflated in a single refuse deposit (e.g., Shephard 1984).

Archaeological studies of consumer behavior have generally focused on comparison of ceramic cost indices, i.e., the Miller Ceramic Economic Scaling Index (Miller 1980) and derivatives, or various indices based on the cost of specific foodstuffs. While some individual studies have produced interesting results, many ambiguities have emerged, particularly when inter-site comparisons have been attempted.

Some of the key concepts that appear to be relevant to future archaeological study of consumer behavior include (i) affiliation with broadly defined socioeconomic classes, (ii) affiliation with distinct ethnic groups or classes, (iii) regional market characteristics, particularly the availability of certain material goods, (iv) the rural-urban continuum, (v) the household life cycle and structure, (vi) the household income strategy, and (vii) the categories of expenditures. Of these key concepts, archaeologists as a whole have been least attentive toward the last. Although classification is a principal focus of material culture study, there is a lack of classificatory schemes that would permit a more sophisticated interpretation of consumption patterns than is now in general use.

Schiffer has articulated an important set of concepts and models for understanding the use of material items within a behavioral or cultural context (Schiffer 1972). In particular, the life cycle model is useful for understanding the circumstances by which material elements pass through a cultural system and ultimately enter the archaeological record. Schiffer (1972) defined two primary classes of material elements, durables and consumables. Durable elements include tools, facilities (i.e., architecture), etc., while consumable elements include food fuel, etc. The full life cycle for durable elements typically includes manufacture, merchandising and use stages before entering the archaeological record. The full life cycle for consumable elements typically includes procurement, preparation and consumption stages before entering the archaeological context. It is important to note that the life cycles of both classes, durables and consumables, may be prolonged by lateral cycling (i.e., conversion of the object's primary function) or by recycling, or cut short at any time as a result of loss, discard or abandonment. These Schifferian concepts have been proven most useful for the evaluation of archaeological formation processes, but the basic dichotomous classification of material goods into two classes, durables and consumables, may be useful for understanding cultural behavior at the final stage (use or consumption) of the life cycle.

Presently, South's Artifact Pattern Analysis model (South 1977) is in general widespread use among archaeologists; however, this model has been designed to permit comparison between assemblages using purely functional criteria. As originally conceived, South's artifact

classification scheme was based on a hierarchical model wherein artifacts were placed according to 42 formal and functional classes which were subdivisions of nine major artifact groups. As a step away from particularist studies toward definition of more general cultural laws, South's model provided a method for quantitative description and comparison of different assemblages. In application, Artifact Pattern Analysis has been used primarily for interpretation of function or activities represented by particular archaeological assemblages.

Miller's Ceramic Economic Scaling Index (Miller 1980) and derivative methods provide a technique to measure the relative cost of ceramics within an archaeological assemblage. This technique has found widespread acceptance among archaeologists who study consumer behavior patterns between different households, ethnic groups, socioeconomic classes, etc. Although researchers have identified various limitations of this technique, it is one of the few archaeological methods that permits a comparison of cost or quality between functionally equivalent material items.

Dietary remains or foodstuffs have also been extensively used by archaeologists for investigation of consumption patterns. A number of studies have developed economic scaling indices (e.g., Schulz and Gust 1983; Singer 1987) that provide an empirical measurement for the relative cost of archaeofaunal assemblages. The validity of these measures and their underlying assumptions has been critically examined by Lyman (1987), and there are clearly problems not only with the basic assumptions, but also with the analytical methods and what they actually measure, as opposed to what they purportedly measure.

In summary, it appears that there are no archaeological models that are wholly suitable for the study of consumer behavior. While the Schifferian concepts and models (Schiffer 1972, 1983) are useful for identification of archaeological formation processes, they are too general or simplistic to generate testable hypotheses relevant to understanding consumption patterns. South's (1977) Artifact Pattern Analysis method provides a direct means for comparison of assemblages, but while it encompasses a broad range of material items, it is essentially functional in scope. The various ceramic economic scaling and faunal scaling methods permit direct comparison of functionally equivalent assemblages, and they are among the most suitable methods presently available to archaeologists who wish to investigate consumption patterns. The principal limitation of these methods is their narrow scope and susceptibility to conflating factors.

c. Consumer Behavior Research in Other Disciplines

Consumer behavior represents a research issue of broad interest in the social sciences. While archaeologists have examined consumer behavior only in the past few years, other social scientists have studied consumer behavior for hundreds of years, and a diverse body of empirical data and theory is available. There have been a few modern attempts to develop multidisciplinary approaches (e.g., Burk 1967), but the extraordinarily large amount of available information in separate disciplines has perhaps made integrative approaches impractical. Whether focused on individual households or more encompassing socioeconomic, ethnic or occupational groups, the results of consumption studies conducted by economists, sociologists and historians represents an important source of information not only for understanding spending patterns, foodways and income strategies but also more general information on historic urban and rural lifeways.

The earliest studies of consumer behavior may be traced to the seventeenth century when Gregory King and other researchers examined the allocation of household incomes to food,

clothing, savings, taxes, etc. among various European groups (Zimmerman 1936). The content of the diet was also examined in these early studies, generally reported as the amounts consumed of meat, dairy produce, grain and other basic foodstuffs. Like any documentary source, it is important to understand the context in which these early consumption studies were conducted, to identify potential biases. Generally, they were used to support public policy regarding taxation, to advocate minimum wage laws, or protection or improvement of the poor and working classes. In terms of applicability to present-day research, the utility of many early studies on consumer behavior is limited, because the researchers did not utilize scientific methods. In most cases, the methodology applied in these studies was not described, and the data were presented only in aggregate form.

Two studies published in the 1790s marked an important development in the study of consumer behavior, specifically the publication of individual household budgets (Stigler 1954). David Davies collected and published 127 household budgets for poor English laborer households. Households were grouped by the size of the annual income, and expenditures were reported according to six categories: food, rent, fuel, clothing, medical care, and sundries. Davies' figures indicate that expenditures for food represented by far the largest portion of the budget, averaging 72.2% for the entire sample of 127 households. Davies, a clergyman, concluded his study by appealing for passage of a minimum wage law (Stigler 1954).

Another study of consumption patterns among the English poor was conducted by Sir Frederick Morton Eden. Eden's broad-ranging study included a historical overview of the poor, a detailed discussion of the diet, dress, housing and general living conditions of the poor in England, as well as a number of detailed budgets collected from various parishes and townships (Eden 1797). Altogether, Eden examined the budgets of 60 agricultural households and 26 non-agricultural households, grouping expenditures into five categories: rent, food, fuel, clothing, and miscellaneous. Eden's results are generally comparable to those of Davies, and the proportion spent for food out of the total expenditures was 74.5% for agricultural households and 73.9% for non-agricultural households. The wealthiest group of households included in Davies' study had annual incomes of less than £45, and Eden's most wealthy group was defined as those with annual incomes greater than £40. For all groups defined by Davies and Eden, expenditures exceeded income, thereby defining their membership in the lowermost economic class.

The era of modern household budget studies began in the mid-nineteenth century. Two developments stimulated a rapid expansion in the field. First, the widespread social unrest throughout Europe in the 1840s resulted in greater attention to the economic conditions of the less wealthy classes. Second, advances in mathematical theory and statistical techniques allowed the identification of regularities in social phenomena, and a corresponding interest in the social sciences in general (Stigler 1954). At mid-century, household budget studies had attracted so many researchers that in 1853 the International Statistical Congress adopted a uniform plan for the classification of expenditures. Three principal classes of expenditures were defined: (1) physical and material, (2) religious, moral and intellectual, and (3) the luxurious and improvidential. The first category encompasses basic necessities, including expenditures for food, clothing, housing, fuel, medical care, occupational expenses, etc. The religious, moral and intellectual group includes expenditures for items whose utility extends beyond basic survival, but which provide some benefit to the individual and society; these include expenditures for churches, schools, reading material, charities, savings, etc. Expenditures comprised by the third group are those considered to be non-essential in nature: tobacco, alcoholic beverages,

gambling and other forms of recreation and entertainment, toilet articles, etc. (Sorokin et al. 1932:380).

Through the mid-nineteenth century, interest in household budget studies was generally confined to Europe, and the major theoretical developments were made by European researchers. Frederic Le Play, a French sociologist originally trained as a mining engineer, began to publish detailed studies of household budgets. Eventually, Le Play published dozens of these studies for households throughout Europe, and his followers published dozens more. While he made an important contribution to empirical methodology, namely the monograph method that focused on detailed analysis of individual households, Le Play has been somewhat neglected by modern sociologists because of the ideological views he promoted later in his life, particularly those pertaining to social evolution (Silver 1980).

Edouard Ducpetiaux, a Belgian researcher, also completed a large number of individual household studies, using the standard classification of expenditures adopted in 1853. Ducpetiaux's research focused on the wage-earning class, including poor peasants and tenant farmers. Households were grouped into three categories: households dependent on public assistance, households that were poor but able to manage without assistance, and households in "comfortable" circumstances. Nine major categories of expenditures were defined: (1) food; (2) clothing; (3) housing; (4) heat and light; (5) tools and work supplies; (6) education, religion, etc.; (7) taxes; (8) health, recreation, insurance, etc.; and (9) personal services (Sorokin et al. 1932:380; Stigler 1954).

While Le Play and Ducpetiaux concentrated on data collection and description of individual households, Ernst Engel is credited as being the first to formulate general conclusions or theories regarding consumption. Based largely on the studies done by Le Play and Ducpetiaux, Engel conducted a statistical analysis of household expenditure patterns, according to the size of the income, using the data collected by Ducpetiaux. Based on this analysis, Engel reached some important conclusions regarding the allocation of the household income, particularly with respect to the amount spent on food. Engel argued that the proportion of the income spent on food is the best overall indicator of a household's social position, that is, poor households must spend a much greater proportion of their income on food than more wealthy households. Using Ducpetiaux' data, Engel determined that the poorest class spent an average of 71% of their income on food, while the comfortable class spent an average of 62% of their income on food (Engel 1857, cited in Zimmerman 1936; Stigler 1954).

Engel first published his findings in 1857, and they had a widespread influence among other researchers, although they were not clearly understood. Carroll Wright has been cited as having publishing an erroneous interpretation of Engel's argument (Zimmerman 1936:101), one which subsequently gained widespread acceptance. After re-analyzing his data and examining other studies that sought to test his theories with different data, Engel restated his findings, concluding that the relative amounts spent for various types of expenditures varies with the amount of income: as income rises, the proportion spent for food decreases, the proportion for other physical and material needs (housing, clothing, fuel, etc.) remains relatively constant, and the amount spent for education, recreation, and amusement increases (Stigler 1954:99; Zimmerman 1928:904, 1936:99-102).

In the United States, budget studies were largely taken over by governmental agencies that had the resources to compile large statistical samples. Carroll Wright, affiliated with the Massachusetts Department of Labor Statistics and later with the U. S. Bureau of Labor statistics,

is credited with the compilation of the largest household budget sets for the 1870s and 1880s (Modell 1978). Wright's (1875) study, one of the most detailed and comprehensive of its time, was based on the budgets of 375 laborer households. Its findings closely paralleled many of the earlier European studies, in that it demonstrated that expenditures for food accounted for the major portion of the budget. In the least wealthy group, those households with an annual income between $300 and $450, expenditures for food represented 64% of the total; in the most wealthy laboring group, those with an annual income greater than $1200, outlays for food accounted for 51% of the budget (Wright 1875). Wright later moved to the U. S. Department of Labor and conducted even more extensive studies of household budgets (U. S. Department of Labor 1891).

At the beginning of the twentieth century, household budget studies had become increasingly numerous and specialized, evidence of their acceptance by government agencies. At the same time, they became generally less sociological in orientation, but more important in the field of economics, particularly with the development of cost-of-living indices, methods for correlation and curve-fitting techniques (Stigler 1954).

During the early twentieth century, a number of agricultural research stations throughout the U. S. amassed a large amount of information pertaining to farm household budgets. Many of these studies were conducted and reported in a highly standardized format, and their purpose was simply to determine the costs of living for a typical farm household in various locations throughout the country. Nonetheless, some synthetic reports were prepared that went beyond analysis of farm households to include comparisons of rural villages and cities as well (Gee and Stauffer 1929; Kirkpatrick 1926; Kirkpatrick and Tough 1931; Sorokin et al. 1932; Zimmerman 1929).

As the field of rural sociology developed during the early twentieth century, some researchers (e.g., Zimmerman 1928) began to appreciate the potential scientific value of the mass of family budget studies that had been conducted by government agencies. Through analysis of household budgets and expenditures, a number of distinct consumption patterns were recognized among rural populations that distinguished them from urban populations. Among these rural/urban differences are the composition of the diet and the overall distribution of expenditures for clothing, fuel, food, savings, investments, etc. (Sorokin et al. 1932).

Historians have also examined consumption patterns, using a variety of methodological approaches. There are a few wide-ranging historical studies of consumption that draw from a multitude of sources (e.g., Martin 1942), but most historical studies are drawn from a single type of documentary resource. Re-analysis of household budget survey data has been mentioned, particularly in connection with the data sets collected by Carroll Wright. Using more than 2000 individual household budgets gathered during the years 1874, 1889 and 1901, Modell examined the relationship among discretionary expenditures for selected items, and determined that they could be grouped into three broadly defined categories: (1) expressive expenditures--charity, amusements, vacations, husband's clothing, etc., (2) prudential expenditures--labor organizations, life insurance, etc., and (3) indulgent expenditures--alcoholic beverages, tobacco. Further analysis indicated that the allocation of expenditures among these categories was found to vary significantly throughout the life cycle (Modell 1978).

There have been numerous historical studies of consumption patterns that are based on analysis of probate inventories. The focus of these studies ranges from general assessment of overall wealth and standards of living to more specific analysis of diet. There is also considerable variation in the degree to which historians classify or categorize material culture. At the most

basic level, Shammas (1982) utilized a simple dichotomous classification of goods into consumer goods and producer goods; the former category would encompass clothing, personal goods, utensils, furnishings, etc., while the latter category would include tools and facilities utilized in agriculture, crafts or trade. G. Main's (1983) examination of probate records for rural colonial Massachusetts also used the general category of "consumption goods" to examine the general standard of living.

Using probate inventories from Connecticut for the colonial period, J. Main (1983) examined how consumption patterns varied over the life cycle. In this study, Main classified probated items as real property (land), personal property (capital, livestock, tools, etc.) and consumption goods (beds, dishes, furniture, utensils, clothing, etc.). While this study highlighted a bias of probate records toward the oldest segment of the population, the tripartite classification would be of limited utility for examination of consumption patterns from a material culture perspective.

Probate inventory studies of the colonial tidewater area have greater relevance to the present study, not only because they pertain to the same general period and region as the Block 1184 site, but also because they utilized a more elaborate treatment of material culture. A study by Carr and Walsh (1980) identified a number of trends in consumption during the early to mid-eighteenth century. They classified probated items, using the term "items of convenience and comfort" to include coarse ceramics, bed and table linen, chamber pots, warming pans, interior lighting devices, etc. and "luxury items" to designate articles such as silver plate. They stratified their population according to overall wealth, and identified some long-term trends, such as the practice of formal dining and the ritual consumption of tea, coffee and chocolate. Also, they noted a general decrease in the price index of imported goods that had the effect of making items such as fine ceramics, glassware, cutlery, clothing, etc. more affordable to all social strata during the mid-eighteenth century.

A more recent study by Walsh (1983) elaborated upon the increased availability of consumer goods that occurred in the Chesapeake region during the early to mid-eighteenth century. Again using probate inventories, twelve selected "amenities" were tabulated according to five categories of consumer goods: (1) beds and bedding, (2) all other furniture, (3) cooking items, (4) dining-related items, (5) timekeeping items. Individual items within these categories were variously described as "inessentials," "necessities," "amenities," and "minor luxuries." Walsh observed that the pattern of increased consumption did not occur equally throughout all social strata or areas (rural vs. urban). A general increase in consumption was most characteristic of the upper, urban class, while the expenditure patterns of rural households remained relatively stable, regardless of overall level of wealth.

Historical consumption studies focused more narrowly on the topic of diet have used a variety of documentary sources, primarily probate records and household budgets. Many of these studies are mainly descriptive in nature (e.g., McMahon 1981; Shammas 1984), that is, they describe the use of particular foodstuffs in particular historical circumstances, hence they are of limited relevance to the present study. Lemon's (1967) study of rural Pennsylvania (Lancaster County) for the period 1740-1790 is illustrative of the general dietary composition among rural populations during the mid-to-late eighteenth century, and it provides some detail regarding the types of meat, grain, dairy products, beverages, etc. within the rural diet. Since this study was based primarily on probate records, it is biased against foodstuffs that are not easily preserved, such as fresh fish and wild game. In the records examined by Lemon, pork and beef were the only meats actually specified, but Lemon assumes that other meats such as fish and fowl were

also consumed. Pork was apparently the principal meat source, as it was listed in amounts roughly one and one-half times greater than beef.

McMahon completed an extensive study of estate inventories covering a period of nearly two centuries. By examining the widows' portions specified in more than 1200 wills from Middlesex County, Massachusetts, a number of broad trends in New England foodways were identified. Like Lemon (1967), McMahon recognized a bias in the estate inventories toward bulk foods such as salted meat, grains, cider, etc., and she assumed that fresh foods accounted for an important component of the diet. A number of interesting findings were reported with regard to meats. First, the amount of meat consumed increased significantly during the period of study, with pork consumption increasing rapidly during the early eighteenth century, peaking at mid-century. Salt beef consumption was generally less than pork, but it also increased during the same period and stabilized at the end of the eighteenth century. Throughout the period of study, there was also a significant correlation between the overall value of the estate and the presence of salted meat. During the late seventeenth century, only one-fifth of the poorest households had meat, while more than half of the higher valued estates contained meat. These proportions rose during the period of study, but the pattern of disproportionate representation of meat according to overall wealth characterized the entire period (McMahon 1981).

A study by Shammas (1983a) is interesting because it specifically addresses the relevance of Engel's law, i.e., the idea that a decreasing proportion of the household income is spent on food, as the overall household income rises. Shammas examined a large number of budget studies and poorhouse records for fifteenthth to eighteenth century England, and concluded that Engel's law was not valid. Citing wide variations in the general standard of living during the preindustrial period, Shammas discounted Engel's law, stating that it had been formulated on the basis of data collected during a period of rapidly falling food prices. She also dismissed the idea that families could survive by spending four-fifths of their total income on food, as some earlier budget studies had suggested, and noted that during the twentieth century, the proportion of the total budget spent on food by middle class households declined from approximately 60% to 25%.

d. Consumer Behavior as a Middle-Range Research Issue

The point was made earlier that despite a rapid expansion in the number of archaeological studies of consumer behavior, attempts to synthesize information from different areas have not been successful. This has been at least partially attributed to a lack of standard analytical techniques among various researchers, although the use of overly simplistic models has also been identified as an impediment to large-scale or regional syntheses (Henry 1987). Because the study of consumer behavior requires a comparative database, research designs will be required that include (i) more explicitly defined models of consumption and (ii) more explicitly defined test implications, leading to more comparable methods.

Goodyear, Raab and Klinger (1978) have addressed the lack of well-defined research designs throughout all aspects of contract archaeology and identified the central problem as a lack of middle-range theory. The middle range theory concept has become much more frequently cited within the field of historical archaeology, but there are widely differing ideas about what exactly is middle-range theory. Following Merton's original definition (1968:39-72), middle-range theory is intermediate between the orderly description or classification of empirical observations, such as South's (1977) Artifact Pattern Analysis model, and broad theoretical orientations, such as cultural materialism, functionalism or conflict theory. Middle-range research focuses on limited areas of behavior, but it is sufficiently abstract in scope that it can draw together findings

from a variety of analytical perspectives. Because it provides a link between the micro- and macro-scales of cultural phenomena, middle-range research provides a framework to guide empirical data collection as well as a vehicle to examine the validity of higher-order theoretical models.

Binford (1983) has repeatedly pointed out the need for greater attention to middle range research in archaeology. For Binford, middle range theory forms the essence of archaeological inference, and he argues that it is impossible to proceed from observation of the archaeological record to valid statements about the past without first developing and testing theories of the middle range. Theories of the middle range provide a linking process between material culture and the understanding of past behavior. Without a logical and verifiable process of inference, statements about the past are purely speculative and subjective.

Leone and Crosby (1987) argue that the key element in Binford's notion of middle-range theory is the discrepancy between archaeologically identified patterns and the expectations derived from a model or ethnographic analogy. For Leone and Crosby, the area of discrepancy or ambiguity between historical or theoretical models and observed archaeological data constitutes the middle range, and in the context of historical archaeology, they assign contradictions or discrepancies between the documentary record and the material culture record to the middle range. It is in areas of ambiguity (i.e., the "middle range") that Leone and Crosby argue that the most interesting research results will be found.

This notion of the middle range utilized by Leone and Crosby does not directly address the process of archaeological inference, nor does it encompass the issue of scale. South's recent discussion of the role of artifact pattern analysis seems to call for greater attention to middle range research, but without actually using the phrase "middle range":

> More disturbing to me, however, is the almost total absence of any linking of the archaeological patterns to past cultural processes. *What is most frequently missing are arguments of relevance linking historical or processual concepts to the archaeological data patterns. . .* If pattern recognition does not go beyond identifying and labeling pattern it is a particularistic, inductivist exercise of dubious value in itself. The first step beyond pattern recognition is linking *those patterns, through arguments of relevance*, to the ideas we are testing through the questions we are asking (South 1988:27) [emphasis in original].

In addition to the process of inference that links archaeological data to historical models, the concept of scale is central to middle-range theory. Here, the concept of scale is intended to convey the relative size of the units of analysis. In urban archaeology, various researchers have framed their research designs in widely different scales of analysis. At the most narrow frame of analysis, research is focused on particular historic individuals, events or buildings, without an attempt at linkage with broad historical patterns.

Urban archaeological research has been carried out at a variety of scales, ranging from individual households (e.g., LBA 1986b), neighborhoods (e.g., Honerkamp 1987), socioeconomic classes (e.g., Rockman et al. 1983), the city-site (e.g., Cressey and Stephens 1982) to the world system or world economy (e.g., Lewis 1984). It has been argued (LeeDecker and Friedlander 1985) that in many cases, grand-scale research designs are inappropriate, given the scope of data

available for hypothesis testing. In many respects, the household represents an ideal unit of analysis, particularly with respect to interpretation of consumption patterns. The household provides an excellent unit of analysis for middle-range archaeological research, because manifestations of household behavior are often distinctly observable in the archaeological record. Aside from distinct association with particular houselots, the household is an economic unit of consumption, and it may often be directly examined using documentary sources, thereby providing the opportunity to examine consumption with respect to socioeconomic standing, ethnicity, internal composition, income strategy and life cycle (LeeDecker and Friedlander 1985).

2. Local Information Needs--The City's Archaeological Resource Management Plan

The City's archaeological resource management plan (Goodwin et al. 1986) provides an overview of previous archaeological research and establishes priorities for on-going and future research in the City. This document was prepared in accordance with the Department of the Interior's Resource Protection and Planning Process (RP3) model. Although it is essentially a planning document, it provides not only a basis for defining the significance of the site but also a framework for site-specific interpretation. In the following section, the relevance of the present study to specific information needs outlined in the City's archaeological resource management plan is discussed.

The principal foci of investigation for this study include (1) the early to mid-eighteenth century occupation of the Old Swedes Church Parsonage Lot, (2) the aboriginal occupation of Block 1184, and (3) the William Hare Pottery kiln, which operated on Block 1184 during the mid-nineteenth century.

Following earlier outlines of Wilmington's history (Devine 1982; Guerrant 1983), the period during which the Parsonage Lot occupation occurred has been referred to as the Merchant Milling Phase, 1730-1830. This period was characterized by the transformation from subsistence agriculture and household manufactures to a more specialized, market-oriented agricultural system. Relatively little information has been recovered for this period, so that well-preserved archaeological properties that can be assigned to this period are considered to have high significance. Five principal study units, broadly defined information needs, have been defined for the Merchant Milling Phase: Adaptation, The Origins and Growth of Wilmington, The Use of Space, The People of Wilmington, and Wilmington's Regional Context (Goodwin et al. 1986).

Study Unit 8 (Adaptation, 1730-1830) encompasses issues related to the urban environment, foodways and shelter. This is a broadly defined study unit, but the excavations on Block 1184 can provide specific information on some aspects of it, particularly foodways. Foodways represents a major element of consumer behavior, and therefore this information need will be one of the major interpretive themes for the archaeological analysis. The need for information pertaining to shelter (architecture) has been identified under Study Unit 8; the Block 1884 excavations did record a portion of an early eighteenth-century structure, and this information need can be addressed directly but within the limitations of archaeological data.

Study Unit 9 (The Origins and Growth of Wilmington, 1730-1830) specifically identifies the Old Swedes Church Rectory in Spring Alley (Block 1184) as a resource of high significance; therefore, the excavations conducted for this project pertain specifically and directly to this information need.

Study Unit 10 (The Use of Space, 1730-1830) focuses attention on the patterning of activities and structures within urban house lots. For the late nineteenth and twentieth centuries, city atlases provide quite detailed information regarding the patterning of structures within urban lots, and the increasing intensity of land use, manifested by a decrease in the amount of open space, is one of the obvious characteristics of urban development. During Wilmington's Merchant Milling Phase, house lots were quite large and these lots typically contained a large amount of open space, but there is little available information pertaining to the range of activities carried out within the large open lots that characterized the eighteenth-century city. The excavations were confined to a small portion of the Parsonage Lot, therefore the archaeological data is insufficient to to address this information in a comprehensive fashion. However, it is assumed that artifacts recovered from the eighteenth-century structure will at least partially reflect the activities that were carried out on the lot.

Study Unit 11 (The People of Wilmington, 1730-1830) includes three principal issues: prominent individuals, middle and working class individuals, and demographics. Because relatively more is known historically of prominent individuals than of middle and working class people, archaeological resources associated with prominent individuals are considered to be of lower significance than those associated with the middle and working classes (Goodwin et al. 1986). The pastors of Old Swedes Church were probably accorded a high level of respect within the community, but it is uncertain that this was accompanied by greater than average material wealth. This is an issue that can be explored by analysis of the historical and archaeological information. Ethnicity and religious affiliation are discussed in relation to the demographic issue, and the Block 1184 project presents a situation where both the ethnicity and religious affiliation of the Parsonage Lot inhabitants are known, thereby enhancing the interpretive value of the site, particularly for inter-site comparisons.

Study Unit 12 (Wilmington's Regional Context Between 1730-1830) encompasses diverse research themes pertaining to transportation, industry, trade, and international events. Except for a few specific research questions, information needs for this context are considered low. Description of archaeological collections, as a reflection of the material goods available between 1730 and 1830, has been given a low priority in the city plan (Goodwin et al. 1986), since voluminous collections are already available. The majority of the available collections represent nineteenth-century deposits, thus the eighteenth-century assemblage from the Parsonage Lot can provide information on material culture that is not well represented in prior studies.

Wilmington's nineteenth- and twentieth-century history has been described according to two major developmental phases, The Industrial Phase (1830-1880) and the Urban Growth Phase (1880-1930). Six contexts have been defined for these periods: Adaptation, 1830-1880; Origins and Growth, 1830-1880; Use of Space, 1830-1880; People, 1830-1880; Regional Context, 1830-1880; and Urban Growth Phase, 1880-1930. The potential significance of resources associated with these two developmental phases is narrowly defined, because these resources are much more common than those associated with the earlier phases, and because of the larger amount of documentary information available. Information needs that have been specifically defined for this period include foodways, the behavior of particular ethnic groups and certain industries. The archaeological investigations for this study did not produce any well-preserved refuse deposits that would be useful for interpretation of foodways or ethnic group behavior during the 1830-1930 period, however material associated with the William Hare Pottery does provide information about one of Wilmington's smaller industries. Although the manufacture of domestic pottery was not an industry that contributed significantly to Wilmington's growth and

development, historic pottery production is of general and widespread interest among material culture scientists, art historians and archaeologists.

Because the focus of the City's current preservation plan is on the historic period (i.e., post-1600), the entire prehistoric period is treated as a single historic context (Study Unit 1). No prehistoric sites have been identified within Wilmington, and it has been assumed that any remains of aboriginal activity within the City would have been severely disturbed, if not obliterated completely. Because of the lack of prehistoric sites within the City, all surviving aboriginal sites are considered to have a medium to high significance. The Block 1184 excavations did produce evidence of aboriginal activity, and the recovered assemblage can provide some limited information concerning aboriginal occupation of the city. However, because the prehistoric assemblage is so small and largely representative of disturbed contexts, the Native American occupation of Block 1184 is clearly of secondary importance.

Although there is a lack of information concerning the aboriginal occupation of Wilmington, it is assumed that the City's prehistory conforms to the general prehistoric sequence for Delaware and for the surrounding Middle Atlantic region. Custer (1984) has provided a recent summary of the prehistoric cultural sequence for Delaware, according to major temporal periods that reflect broadly defined lifeways. The major divisions of the prehistoric cultural sequence for Delaware, as defined by Custer, are as follows:

Cultural Period	Approximate Dates
Paleo-Indian	12,000 - 6,500 B.C.
Archaic	6,500 - 3,000 B.C.
Woodland I	3,000 - A.D. 1000
Woodland II	A.D. 1000 - 1600

The Paleo-Indian Period was characterized by a hunting and gathering subsistence pattern, followed by small nomadic bands. Large, fluted lanceolate projectile points are the distinctive artifacts of this period. Hunting of now extinct megafauna was important in the Great Plains; however, studies of Paleo-Indian components in the Middle Atlantic region suggest an economy based on hunting of various game species, supplemented by fishing and foraging of vegetal foods available in the environments that characterized the end of the last glaciation.

Archaic Period lifeways were characterized by hunting and gathering of a variety of food resources within a relatively well-defined territorial area. No sites were occupied on a permanent or year-round basis; rather, sites were occupied on a seasonal basis. Like the preceding Paleo-Indian cultures, Archaic lifeways were characterized by a hunting and gathering economy with a relatively mobile settlement pattern and band level of social organization. During this lengthy period of prehistory, there a broadening or diversification of the subsistence base as well as utilization of a wider variety of lithic materials.

The Woodland Period is generally characterized by a greater degree of sedentism, more complex social organization, the introduction of pottery, a subsistence base that included horticulture. Custer's (1984, 1986) use of the terms *Woodland I* and *Woodland II* represents somewhat of a divergence from the generalized Middle Atlantic regional chronology, although it does not imply that Delaware's prehistory was significantly different from that of the surrounding region. The Woodland I period was marked by a strong continuity with the hunting and gathering pattern that characterized the final millenium of the Archaic period, but with larger population aggregates and more intensive use of riverine and estuarine resources. This period is also characterized by the

appearance of inter-regional trade networks and elaborate mortuary ceremonialism. The Woodland II period is distinguished from the preceding Woodland I period by the disruption or attenuation of long-distance trade networks and by the emergence of agricultural food production and more fully sedentary life lifestyles.

C. METHODOLOGICAL APPROACH

This section contains a brief summary of the research methods used to carry out the historical research and archaeological investigations. More detailed descriptions of the various methods and techniques are provided in the ensuing chapters.

The historical research was carried out in two phases. The initial historical research preceded the archaeological fieldwork and was designed to provide general information on the developmental history of Block 1184 as well as a detailed chain-of-title for the Parsonage Lot. This involved examination of cartographic materials, city directories, census records, and secondary sources. After well-preserved archaeological deposits were identified on the parsonage pot, a secondary program of historical research was carried out to provide information relative to the physical characteristics of the Parsonage Lot, the pastors and their associated households that occupied the lot, and religious life in general. This research was carried out at the Old Swedes Church, the Historical Society of Delaware, and other research facilities.

The archaeological excavations were also carried out in two phases, the first of which was exploratory in scope. After well-preserved eighteenth-century deposits were identified and delineated on the Parsonage Lot, an archaeological data recovery program was designed to recover and record a sample of the material culture, including dietary refuse from well-preserved contexts.

Artifact cataloging and analysis were carried out to provide information regarding the dating of the deposits and the formation processes that formed the archaeological record. A wide range of material culture was recovered, but the analysis was focused most intensively on artifacts related to foodways. This included reconstruction of both ceramic and glass vessels. Intensive analysis was also undertaken for dietary refuse within the assemblage. Standardized analytical formats were used during the artifact cataloging to permit eventual comparisons between sites. All artifact data were entered into a computerized database system, to facilitate computations, summaries and the eventual exchange of information with other researchers.